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CASE REPORT

Synchronous hemophagocytic lymphohistiocytosis with Hodgkin's lymphoma in tubercular patient

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ABSTRACT

We report an uncommon case of simultaneous presence of hemophagocytic lymphohistiocytosis (HLH) with Hodgkin's lymphoma and tuberculosis in an immunocompetent male. In the absence of treatment HLH is frequently associated with fatal outcome, although spontaneous partial regression is also noted. The early diagnosis of HLH is critical to prevent end organ failure. There are defined criteria for diagnosis of HLH but visualization of hemophagocytosis in bone marrow smear or biopsy along with fever, splenomegaly, elevated ferritin & triglycerides and peripheral blood cytopenias are highly suggestive of HLH. The pathologist and clinician should be aware of this uncommon entity so that early diagnosis and institution of therapy can be done to prevent poor prognostic outcome.

Key words: Hemophagocytic lymphohistiocytosis, Hodgkin's lymphoma, tuberculosis

Introduction

The maiden description of hemophagocytic lymphohistiocytosis (HLH) was provided by Farquhar and Claireaux in 1952 as familial hemophagocytic reticulosis [1]. The authors characterized the disease as a histiocytic proliferation in solid organs along with the phagocytosis of cells of various hematopoietic lineage, thereby referring it as a hemophagocytic syndrome. The etiology is linked to a defect in inflammatory process resulting from an uncontrolled hypercytokinemia as a congenital or acquired defect in natural killer (NK) T–cell function of cytotoxic pathway. Although HLH is neither associated with any specific age groups nor has a gender predilection, the case-fatality rate is usually high accounting to over 95% in untreated children [2]. Even with currently recommended therapy, HLH is frequently associated with fatal outcomes, although spontaneous partial regression has also been reported. The early institution of therapy is critical to control the hypercytokinemia that otherwise may lead to end-organ failure and death [3]. In this report, we describe a case of a young male with tuberculosis that was diagnosed with HLH associated with Hodgkin's lymphoma.

Case Report

A 26-year-old male, currently on antitubercular drug regimen, presented to our clinic with high-grade fever (>104°F) for two weeks. On examination, enlarged abdomen with the presence of free fluid and hepatosplenomegaly was noted. Computed tomography scan of the abdomen confirmed the presence of free fluid (mild ascites) and organomegaly and demonstrated multiple enlarged pre- and para-aortic and mesenteric lymph nodes. Complete blood panel demonstrated reduced hemoglobin level (7.0 g/dL), erythrocytopenia (3.98 x 10^{12}/ L), and thrombocytopenia (90 × 10^9/ L), with normal leukocyte count (7.2 × 10^0/ L). Renal function tests and liver function tests were unremarkable. Significant laboratory findings included elevated serum ferritin level (over 1650 ng/mL), increased lactate dehydrogenase at 654 IU/L and hypertriglyceridemia. The bone marrow (BM) biopsy was hypercellular, depicting normoblastic erythroid maturation with increased megakaryocytes. The normal marrow components were replaced by pleomorphous population of cells comprising of eosinophils, plasma cells, lymphocytes, and neutrophils. Occasionally large binucleated cells with eosinophilic nucleoli and multiple granuloma were visualized [Figure 1]. These findings were consistent with hemophagocytosis of red cell and white cells in the BM [Figure 2]. A provisional diagnosis of Hodgkin's lymphoma along with extensive hemophagocytosis was made. Further evaluation with immunohistochemistry demonstrated cluster differentiation (CD) 20 positivity. The cells did not stain with CD 30 and were negative for the leukocyte common antigen marker as well.

Discussion

Hemophagocytic syndrome is systemic inflammatory clinical syndrome. The diagnosis of HLH can be established by (1) molecular diagnosis of HLH or (2) by the presence of five-positive findings out of the following nine criteria: (a) fever, (b) splenomegaly, (c) cytopenias (affecting two of the three lineages in the peripheral blood with counts of hemoglobin being <9.0 g/dl, platelets being <100 × 10^9/mm^3, neutrophils being <1.0 × 10^9/mm^3, and hemoglobin level of <100 g/L for infants <4 weeks), (d) hypertriglyceridemia and/or hypofibrinogenemia with fasting triglycerides level of >3.0 mmol/L (i.e., 265 mg/dl), (e) fibrinogen level of <1.5 g/L, (f) hemophagocytosis in BM or spleen or lymph nodes, (g) low or absent NK-cell activity (according to local laboratory reference), (h) ferritin level of >500 nmg/L, and (i)

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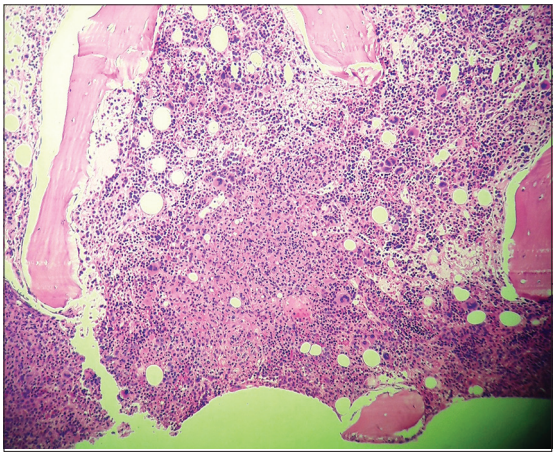

Figure 1 Bone marrow biopsy (H and E, ×10) – showing granuloma

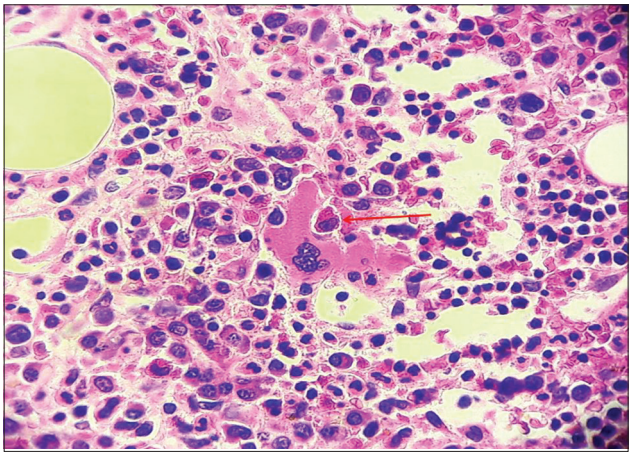

Figure 2 Bone marrow biopsy (H and E, ×40) – showing hemophagocytosis (arrow)

soluble CD25 (i.e., soluble IL-2 receptor) ≥2400 U/ml [4,5]. Our patient had remarkable findings in BM biopsy (hemophagocytosis) along with fever, splenomegaly, abnormally elevated serum ferritin levels and triglycerides, cytopenia (low erythrocyte and platelet counts) with low hemoglobin level, strongly suggestive of HLH. Immunohistochemistry was positive for B cell marker, CD20.

The association between HLH and hematological malignancy including Hodgkin's lymphoma is well described. Approximately 1% of patients with Hodgkin's lymphoma develop HLH [6]. Tumors can cause HLH by excessive secretion of cytokines [7]. Our patient was on antitubercular regimen for an active history of mycobacterial tuberculosis, a plausible triggering factor for HLH.

Conclusion

Our report describes a case of HLH in a young Indian male. The classical hemophagocytosis seen in our case is critical in reaching a diagnosis of HLH. The simultaneous presence of typical granuloma, Hodgkin's cell, and hemophagocytosis is rare but important to note so that the complete diagnosis is made during the management of the patient.

References

1. Farquhar JW, Claireaux AE. Familial haemophagocytic reticulosis. *Arch Dis Child* 1952;27(136):519-25.
2. Henter JI, Elinder G, Ost A. Diagnostic guidelines for hemophagocytic lymphohistiocytosis. The FHL study group of the histiocyte society. *Semin Oncol* 1991;18(1):29-33.
3. Henter JI, Samuelsson-Horne A, Aricò M, et. al. Treatment of hemophagocytic lymphohistiocytosis with HLH-94 immunochemotherapy and bone marrow transplantation. *Blood* 2002;100(7):2367-73.
4. Mehta RS, Smith RE. Hemophagocytic lymphohistiocytosis (HLH): a review of literature. *Med Oncol* 2013;30(4):740.
5. Jaiswal A, Mallya V, Singh V, et. al. Hemophagocytic lymphohistiocytosis secondary to multiple infections: case report of a rare entity. *Indian J Pathol Microbiol* 2017;60(1):137-8.
6. Machaczka M, Vaktnäs J, Klimkowska M, et. al. Malignancy-associated hemophagocytic lymphohistiocytosis in adults: a retrospective population-based analysis from a single center. *Leuk Lymphoma* 2011;52(4):613-9.
7. Emmenegger U, Schaer DJ, Larroche C, et. al. Haemophagocytic syndromes in adults: current concepts and challenges ahead. *Swiss Med Wkly* 2005;135(21-22):299-314.

Authors' Contributions

RS conceptualized the work, designed, wrote the manuscript. MK aided in conception, writing and literature search. GG contributed to the interpretation and final approval of manuscript.

Consent

Written informed consent was obtained for the publication of the images.

Competing Interests

The authors declare that they have no competing interests.

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